



Application No. 10/803,174

Docket No.: E0196.0005

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figure 10.

Attachment: Replacement sheet
 Annotated sheet showing changes

REMARKS

Claims 1-33 are pending in this application. Claims 1-13, 18-24, 30-33 stand rejected and claims 14-17 and 25-29 are withdrawn from consideration. By this Amendment, claims 1 and 5 have been amended and claims 2, 11, 14-18, and 25-29 have been canceled without prejudice. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

The drawings were objected to under 37 C.F.R. § 1.83(a). Applicants have amended claim 10 which now shows the spacer of claim 24. The spacers are designated as reference numeral 60. Applicants respectfully request acceptance of the revised Figure.

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended claim 5 to remove "ISO." Claim 5 now recites "International Organization for Standardization Standard 786-2." In view of this amendment, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1-13, 18-24, and 30-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,384,425 ("Huber") in view of U.S. Patent No. 6,235,553 ("Kawan"). Applicants respectfully traverse this rejection.

Claim 1 is directed to a non-conducting substrate forming a strip or panel on which a plurality of carrier elements having respective boundary lines are formed. The substrate has a contact side and an insertion side opposite the contact side. A

conducting metallization is provided on the insertion side such that an electrical connection can take place by means of flip-chip bonding between contact points of an integrated circuit to be applied to the insertion side and the insertion side metallization. A plurality of contact elements on the insertion side metallization within each boundary line is at least partly provided for bonding with flip-chip contacts of the integrated circuit. The contact elements are in a form of interconnects having a first end and a second end. At least some of the interconnects are provided with area-covering metallizations that serve to increase the bending rigidity of the substrate.

The Office Action asserts that "Huber discloses at least some of interconnects 15 are provided with area-covering metallization (considering all metallized areas), which inherently serve for increasing the bending rigidity of the substrate". Applicants respectfully disagree.

In Figure 2 of Huber lines 15 do not represent contact elements bonding with flip-chip contacts of the integrated circuit. As can be easily seen from the lower right part of figure 2 the bonding holes 12 only serve for bonding the contacts with the integrated circuit. The metallized areas 11 and 15 are used for the subsequent etching of the conductor structures. As eight holes are provided to contact eight contacts and all the metallized areas 11 are short-circuited the integrated circuit would not be functional if these contacts are used for operating the integrated circuit. The same argument goes for the conductor structures 15. Secondly, no flip-chip arrangement is taught in Huber. Claim 1 is therefore allowable.

The interconnects of claim 1 require an area which is covered with metallization, shown, for example, as the interconnects 26 in Figure 6. However, according to claim 1 some of those interconnects are provided with area-covering metallization, the area-covering metallization being described as additional elements to the previous metallization of the interconnects 26. See paragraph [0062]; and (26,27)

Fig. 9. The extra area-covering metallization 27 and the interconnects 26 are not the same. The contrast between the interconnects 26 having area-covering metallizations 27 and those that have not can be found by comparing Figure 9 with Figure 6 in which none of the interconnects 26 have extra area-covering metallizations 27. Further description can be found in the second and third sentence of [0025] of the invention publication. The contact elements formed as interconnects have the effect that initially only a small part of the surface area within the boundary line which defines the carrier element is metallized. In contrast to the extra additional metallization 27, the larger metallized area on the insertion side causes the carrier element to become more rigid. It therefore seems clear that in claim 1 the metallization refers to the interconnects 26 and the extra area-covering metallization parts 27.

The definition of the term “area-covering metallization” is found in the second sentence of [0062] which says that they ‘take up a large part of the surface area of a carrier element’. Clearly, regarding Figure 2 of Huber this is not the case so that Huber does not disclose claim 1.

The advantage of having large areas of metallization on both sides of the substrate causes the substrate to be more rigid, which makes it possible to use a thinner substrate material for example of PEN, PET, P1 or paper. Huber does not provide any reason or suggestion to increase the rigidity of a substrate by increasing the area of the metallization on both sides of the substrate. Huber teaches in column 4, lines 18 to 61 using a re-enforcement frame bonded onto the chip side. Therefore, no teaching for the subject-matter of claim 1 is present. For this additional reason, claim 1 should be allowed.

Claims 3-10, 12-13, 19-24, and 30-33 depend either directly or indirectly from, and contain all the limitations of claim 1. These dependent claims also recite additional limitations which, in combination with the limitations of claim 1, are neither disclosed nor

suggested by Huber and are also believed to be directed towards the patentable subject matter. Thus, claims 3-10, 12-13, 19-24, and 30-33 should also be allowed.

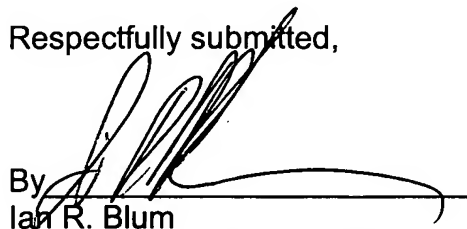
Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

Dated: October 20, 2006

Respectfully submitted,


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Attachments



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REPLACEMENT SHEET

Application No. 10/803,174

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ANNOTATED SHEET SHOWING CHANGES

FIG 9

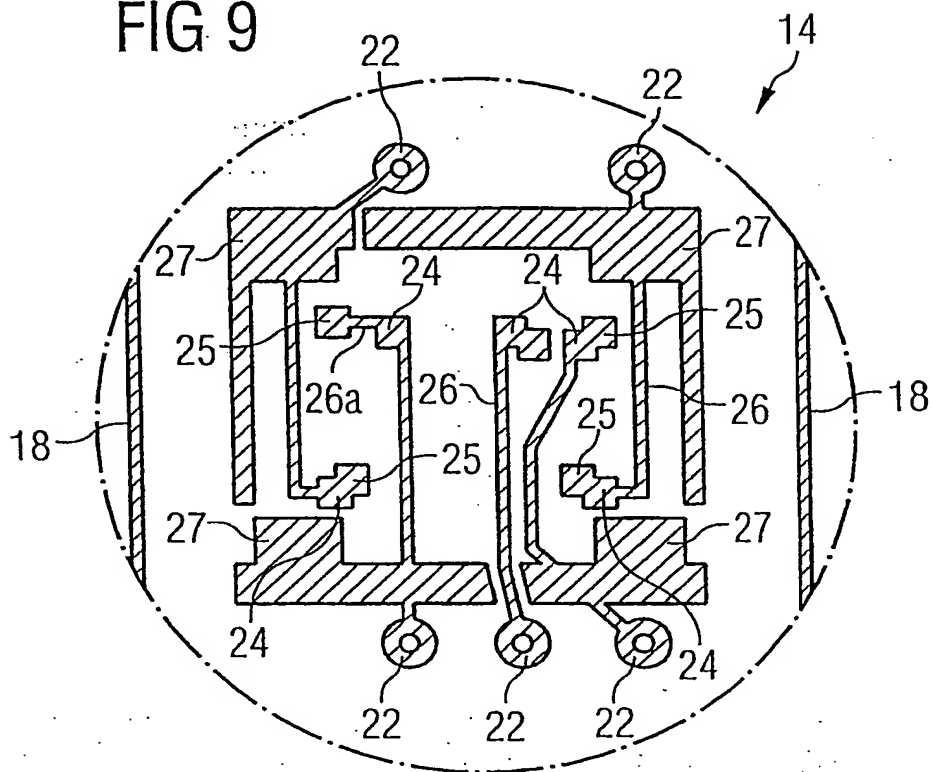


FIG 10

